



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,166	09/30/2003	John K. Walton	EMC2-122PUS	5917
45456	7590	12/07/2006	EXAMINER	
RICHARD M. SHARKANSKY PO BOX 557 MASHPEE, MA 02649			SORRELL, ERON J	
			ART UNIT	PAPER NUMBER
			2182	

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/675,166

Applicant(s)

WALTON ET AL

Examiner

Eron J. Sorrell

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5-11 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

DETAILED ACTION

*Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/21/06 has been entered.

*Information Disclosure Statement*

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

*Election/Restrictions*

3. Newly submitted claims 10 and 11 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claim 5 and claims 10 and 11, appear to be distinct inventions related as combination-subcombination. Originally filed claim 5 is directed toward a queuing system that comprises an I/O interface having an outbound queue, a microprocessor that processes information, and a memory storing an inbound queue. Claim 5 does not have any details as to the processing operations that are performed by the microprocessor. Newly filed claims 10 and 11, give the details of the processing operations and can be used in an entirely different system to perform, for example, network protocol processing, since the claim details the packet zing and transmission of data over a network.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 10 and 11 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

*Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 5-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Referring to claim 5, the limitation "*wherein the location for the table is a function of the receiving information in the queue entry and derives the location into the table therefrom* (emphasis added)" is unclear to the Examiner. It is unclear if "the location" is referring to the location of the table itself in memory or an index into the table for referencing information therein.

7. Referring to claims 5,6,7,8, and 9. Per MPEP 2106, "language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of claim or claim limitation. These claims all have limitations that suggest or make optional

Art Unit: 2182

certain functionality (e.g. claim 5 recites, *inter alia*, an input/output interface section *for receiving*...(emphasis added)).

It is unclear to the Examiner whether or not the applicant intends to have these limitations as part of the scope of the claims. The claims will be examined as if the claims do require the optional language, however, if the applicant does intend to have these limitations included in scope of the claims, the claims should be amended to positively recite the functionality. For example, claim 5, line 3 can be amended to recite "an input/output section *receiving* information from a source...(emphasis added)".

#### *Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2182

9. Claims 6 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Rowlands et al. (U.S. Patent No. 7,028,115 hereinafter "Rowlands").

10. Referring to claim 6, Rowlands teaches a queuing system, comprising:

at least one input/output (I/O) interface (see I/O bridge 18 in figure 1) for receiving information from a source thereof and for returning information to interface to such source (see lines 39-64 of column 6), such I/O interface having an outbound queue (item 34C); and

a plurality of processing units (see items 12A and 12B in figure 2) coupled to the at least one I/O interface, each one of the processing units being coupled to a corresponding processing unit memory (memory comprises queue 34A and 36A), each one of the processing unit memories having an inbound queue for such coupled processing unit (see item 36A in figure 2); and

wherein the at least one I/O interface outbound queue stores outbound information being returned to the I/O interface after being processed by one of the processing units (see paragraph bridging columns 6 and 7).

Art Unit: 2182

11. Referring to claim 7, Rowlands the I/O interface creates queue indices for storage in the inbound queues of the processor unit memories (see lines 44-56 of column 8).

*Claim Rejections - 35 USC § 103*

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs et al. (US Pub No. 2004/0100980 hereinafter "Jacobs") in view of Rowlands, and further in view of Gregg et al. (U.S. Pub. No. 2003/0061475).

14. Referring to claim 5, Jacobs teaches a queuing system comprising:

a plurality of interconnected directors (see line cards 1-N in figure 1), each one of the directors having:

an input/output interface section (see items 610 and 620 in figure 6) for receiving information from a source thereof and



for returning information to interface to such source (see lines 3-6 of paragraph 38);

a microprocessor for processing information sent thereto from a remote one of the directors, each one of the microprocessors having a CPU (forwarding engine 630 in figure 6) and a CPU memory (queues 650 and 670 in figure 6),;

wherein each of the input/output sections includes queues for outbound information (queue 670 in figure 6) being returned to the source through such originating one of the directors after being processed by the microprocessor of such remote one of the directors (see lines 11-13 of paragraph 38);

wherein each one of the directors includes a translation table, such table storing at a location thereof corresponding to each one of the remote directors a producer index for the queue of such remote director and a consumer index for such one of the remote directors (see head and tail pointers in paragraph 30).

Jacobs fails to teach the memory storing a queue for inbound information passed to such director for processing therein such information being sent to the remote director from an originating one of the directors and the location for the table is a function that takes some part of the receiving information in the queue entry and derives the location into the table therefrom.

Art Unit: 2182

Rowlands teaches, in an analogous system, the cpu memory storing a queue for inbound information passed to such director for processing therein such information being sent to the remote director from an originating one of the directors (see item 36A in figure 2).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the teachings of Jacobs with the above teachings of Rowlands for the advantage of reducing latency of the processor accessing incoming commands and operations.

Gregg teaches, in an analogous system, the location for the table is a function that takes some part of the receiving information in the queue entry and derives the location into the table therefrom (see paragraph 57 of page 4).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Jacobs and Rowlands with the above teachings of Gregg. One of ordinary skill in the art would have been motivated to make such modification in order to efficiently pass messages from one system to another as suggested by Gregg (see paragraph 57).

Art Unit: 2182

15. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rowlands in view Jacobs et al.

16. Referring to claim 8, Rowlands teaches the queuing system of claim 7 as shown above, however, Rowlands fails to teach the I/O interface includes a translation table, such table storing at a location a producer index for the plurality of processing units and a consumer index for such plurality of processing units.

Jacobs teaches, in an analogous system, a translation table, such table storing at a location thereof corresponding to each one of the remote directors a producer index (write pointer) for the queue of such remote director and a consumer index (read pointer) for such plurality of processing units (see head and tail pointers in paragraph 30).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Rowlands with the above teachings of Jacobs for the advantage of providing fast access to buffer status information as suggested by Jacobs (see paragraph 31).

17. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs in view of Rowlands.

Art Unit: 2182

18. Referring to claim 9, Jacobs teaches a queuing system comprising:

a plurality of interconnected directors (see line cards 1-N in figure 1), each one of the directors having:

an input/output interface section (see items 610 and 620 in figure 6) for receiving information from a source thereof and for returning information to interface to such source (see lines 3-6 of paragraph 38);

a microprocessor for processing information sent thereto from a remote one of the directors, each one of the microprocessors having a CPU (forwarding engine 630 in figure 6) and a CPU memory (queues 650 and 670 in figure 6),;

wherein each of the input/output sections includes queues for outbound information (queue 670 in figure 6) being returned to the source through such originating one of the directors after being processed by the microprocessor of such remote one of the directors (see lines 11-13 of paragraph 38);

wherein each one of the directors includes a translation table, such table storing at a location thereof corresponding to each one of the remote directors a producer index for the queue of such remote director and a consumer index for such one of the remote directors (see head and tail pointers in paragraph 30).

Jacobs fails to teach the memory storing a queue for inbound information passed to such director for processing therein such information being sent to the remote director from an originating one of the directors.

Rowlands teaches, in an analogous system, the cpu memory storing a queue for inbound information passed to such director for processing therein such information being sent to the remote director from an originating one of the directors (see item 36A in figure 2).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the teachings of Jacobs with the above teachings of Rowlands for the advantage of reducing latency of the processor accessing incoming commands and operations.

#### *Response to Arguments*

19. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

#### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eron J.

Art Unit: 2182

Sorrell whose telephone number is 571 272-4160. The examiner can normally be reached on Monday-Friday 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EJS

November 25, 2006



KIM HUYNH  
SUPERVISORY PATENT EXAMINER

12/5/06